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DEVELOPMENT OF A MOLECULAR ASSAY FOR THE DETECTION OF *BORRELIA* SPP. IN ANIMAL SAMPLES

V. Facile[1], M. Magliocca[1], L. Gallina[1], L. Urbani[1], A. Balboni[1], M. Battilani[1]

[1]*Department of Veterinary Medical Science, University of Bologna, Ozzano dell'Emilia (BO), Italy*

Introduction
Borrelia is a genus of spirochete bacteria which includes two main groups: *Borrelia burgdorferi* sensu lato, a genospecies complex causing Lyme Disease (LD), and the Relapsing fever group which includes several species causing flu-like symptoms. *Borrelia* is one of several tick-borne pathogens that can affect both animal and human health [1]. Infections of dog have been reported worldwide but few molecular prevalence studies have been carried out. The diagnosis of this disease is mainly serological, while molecular assays, often less sensitive, allow to genetic characterise the identified bacteria. Our study aimed to develop a molecular assay for the detection of *Borrelia* spp. DNA in animal samples and to assess the molecular prevalence of these bacterial species in dogs.

Materials and Methods
A Taqman Real-Time PCR (qPCR), designed on 16S rRNA gene of *Borrelia* spp. and capable of identifying a broad spectrum of *Borrelia* species was developed, validated and used to test DNA extracted from blood samples of 70 dogs referred to the Veterinary Teaching Hospital of the University of Bologna.

Results
The qPCR developed showed a limit of detection of 10 copies/µL and correctly classified positive and negative controls. None (0/70) of the dogs tested positive.

Discussion and Conclusion
The assay developed showed excellent sensitivity and specificity for *Borrelia* spp. Considering the low molecular prevalences found in the few studies carried out, the absence of positive dogs in the analysed population was expected. Further studies will need to expand both the number of dogs and the animal species tested. The use of molecular diagnosis allows for epidemiological surveillance and assessment of the effectiveness of tick control and infection control measures, helping to reduce the risk of disease transmission to humans and animals.

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References
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